



The 2nd HKIAA Symposium

香港天文與天體物理研究所第二屆研討會

Preliminary Programme

Yasumoto International Academic Park (YIA) · The Chinese University of Hong Kong

5–6 November 2026

Thursday, 5 November 2026

Venue: Lecture Theatre 1 (LT1), G/F, Yasumoto International Academic Park (YIA), CUHK

Time	Speaker	Title
09:00–09:10	Director's welcome and status report Prof. Bing Zhang (HKIAA / HKU)	
Morning I · Galaxies, stars, planets and observational methods		Chair: Yue Zhao (HKUST)
09:10–09:25 <i>INVITED</i>	Man Hoi Lee HKU	Free Eccentricities of Circumbinary Objects and Implications for Their Formation and Dynamical Evolution
09:25–09:40 <i>INVITED</i>	Jeremy Lim HKU	Cosmic Daybreak
09:40–09:55	Sonya Liu HKU	Dynamic Duo(s): Jovian Exoplanet Pairs Near Low-Order Mean Motion Resonances
09:55–10:10	Nan Xu HKU	EMPI: A Numerical Framework for Plasma-Induced Effects on Radio Waves
10:10–10:25	Xiaoyuan Yang CUHK	Probing Enhanced Small-Scale Primordial Power Spectrum with Maximum Global 21-cm Signals at Cosmic Dawn
10:25–10:40	Xiyuan Li CUHK	Hidden Angle Dispersion in Davis–Chandrasekhar–Fermi Magnetic Field Inference
10:40–11:10	<i>Coffee break & poster session</i>	
Morning II · Galaxies, stars, planets and observational methods		Chair: Yuguang Chen (CUHK)
11:10–11:25 <i>INVITED</i>	Tao Liu HKUST	PPA/PTA Detection of Ultralight Axion-like Dark Matter - Some Recent Progress
11:25–11:40 <i>INVITED</i>	Renbin Yan CUHK	Studying Interstellar Medium using Integral Field Spectroscopy
11:40–11:55	Ivy He HKU	A near-circular attractor in time-delay lens models: ellipticity-driven bias in H_0
11:55–12:10	Zhizhen Qin HKU	How to Make Planets Go Retrograde in Binary Star Systems
12:10–12:25	Rommulus Lewis HKU	Unveiling the Imperfections in Perfect External Shear Gravitational Lens Models
12:25–12:40	Amruth Alfred HKU	Uncovering the Invisible with Lensing
12:40–14:10	<i>Lunch break: Chung Chi College Staff Restaurant</i>	
Afternoon I · Compact objects, high-energy astrophysics and dark matter		Chair: Sam Wong (CityU)
14:10–14:25 <i>INVITED</i>	Yiming Zhong CityU	The origin of the Fermi halo-like emission: a new model of Fermi bubbles
14:25–14:40	Shibo Yuan CUHK	Gravity-driven super-Alfvénic turbulence predicts near-critical cores in molecular clouds

Time	Speaker	Title
14:40–14:55	Ma Ho Lung CUHK	Solar Atmospheric Neutrinos: A Simulation-Based Flux Calculation with Solar Magnetic Field and Neutrino Propagation
14:55–15:10	Hongxuan Jiang HKU	From Tidal Disruption to Black Hole Stars: GPU Simulations of Star–Black Hole Encounters with AthenaK
15:10–15:25	Alvin Cheuk-Nam Chu CUHK	Dark matter self-annihilation as a hidden energy source in white dwarfs
15:25–15:55	Coffee break & poster session	
Afternoon II	Compact objects, high-energy astrophysics and dark matter	
15:55–16:10 INVITED	Yihan Wang HKU	Cluster Dynamics of Nuclear Transients
16:10–16:25	Zi Zhuang CUHK	PPVFT: A method to retrieve density-weighted velocity spectrum index from PPV data
16:25–16:40	Yuxiang Tian CUHK	Cloud-Field Alignment Shapes Contraction Dynamics — the Bimodal Contraction Critical Density
16:40–16:55	Jin-Ping Zhu HKU	X-rays breaking out of pre-explosion ejecta mark a supernova's first light
16:55–17:10	Kwan Man HKU	Bridging Magnetized Super-Eddington Accretion Simulations and Observations
17:10–17:25	Laura Elina Uronen CUHK	Associating binary black holes with galactic centres
17:25–17:40	Yongxin Hua CUHK	Can evaporating primordial black holes explain warm, old neutron stars?

Friday, 6 November 2026

Venue: Lecture Theatre 2 (LT2), G/F, Yasumoto International Academic Park (YIA), CUHK

Time	Speaker	Title
Morning I · Galaxies, stars, planets and observational methods		Chair: Jane Lixin Dai (HKU)
09:00–09:15 INVITED	Binzheng Zhang HKU	Magnetohydrodynamics Modeling of Giant Magnetospheres
09:15–09:30 INVITED	Man Ho Chan EdUHK	Constraining dark matter properties by radio data
09:30–09:45 INVITED	Lap-Ming Lin CUHK	Inferring the trace anomaly of dense matter from neutron star observations
09:45–10:00	Tao Jing CUHK	Correlation between CO, PAH, and dust in nearby main sequence galaxies
10:00–10:15	Che Li CUHK	Estimating Spatial-Curvature and Kinematical Backreaction with Halo and Void
10:15–10:30	Cheng Ho Lam CUHK	Scorpio: a two-fluid code for ambipolar diffusion simulations informed by recent observational constraints
10:30–11:00	Coffee break & poster session	
Morning II · Galaxies, stars, planets and observational methods		Chair: Yi Wang (HKUST)
11:00–11:15 INVITED	Yiliang Li HKU	The origin, evolution, and distribution of life in the Solar System
11:15–11:30 INVITED	Yuguang Chen CUHK	Continuum Fluorescence: A New Tool for Precision Nebular Astronomy
11:30–11:45 INVITED	Tsang Keung Chan CUHK	Capturing the Complexity of HII regions with radiation hydrodynamics and non-equilibrium thermo-chemistry simulations
11:45–12:00 INVITED	Meng Gu Tsinghua University	The Stellar Populations and Stellar Initial Mass Function in Massive Galaxies Near and Far
12:00–12:15	Zhuo Cheng CUHK	Calibrating nebular density diagnostics: resolving the [O II]–[S II] discrepancy
12:15–12:30	Ziming Peng CUHK	Re-evaluating the Mass–Metallicity Relation with Self-Consistent Photoionization Models
12:30–14:00	Lunch break: Chung Chi College Staff Restaurant	
Afternoon I · Compact objects, high-energy astrophysics and dark matter		Chair: Renbin Yan (CUHK)
14:00–14:15 INVITED	Stephen Ng HKU	The extreme pulsar environment
14:15–14:30 INVITED	Kenny C. Y. Ng CUHK	Towards understanding GeV solar gamma rays
14:30–14:45 INVITED	Hua-bai Li CUHK	The C.U.P.HY lenses on star formation
14:45–15:00	Yi-Han Iris Yin HKU	Minutes-long Soft X-ray Prompt Emission from a Compact Object Merger
15:00–15:15	Samuel S. H. Tse CUHK	Boosted Dark Matter Directionality in Large Liquid Scintillator Detectors
15:15–15:30	Cao Yujie CUHK	Principles of the new polarization modulation instrument for the Roger project, designed for millimeter-wave observations
15:30–16:00	Coffee break & poster session	
Afternoon II · Compact objects, high-energy astrophysics and dark matter		Chair: Stephen Ng (HKU)
16:00–16:15 INVITED	Yue Zhao HKUST	Direct Multimodel Dark Matter Search with Gravitational-Wave Interferometers Using LVK Data

Time	Speaker	Title
16:15–16:30 INVITED	Yi Wang HKUST	Boosting Theoretical Research with Agentic AI
16:30–16:45	Jinhong Chen HKU	A Multimessenger Journey into White Dwarf Tidal Disruption Events by Intermediate-Mass Black Holes
16:45–17:00	Tsang Yi Tung CUHK	White Dwarf as Detectors of Sub-Asteroid Mass Primordial Black Holes
17:00–17:15	Xu Yu On CUHK	Monte Carlo Simulation of Earth Atmospheric Gamma Rays
17:15–17:30	Hui Yat Long CUHK	New UHECR Composition Constraints from Next-gen Detectors
17:30–17:35	Closing announcements	

Poster Presentations

Posters are displayed throughout the symposium, with discussion during the coffee breaks. Poster numbers indicate the assigned display location.

No.	Presenter	Title
P01	Wenyu Cao CUHK	A Search for Solar Gamma-Ray Emission with LHAASO
P02	Yingyi Cao HKU	Dynamical Analysis of High-order Mean-motion Resonance in extrasolar planetary system: 5:1 MMR in HD 202206
P03	Ellis Chan CUHK	Consistent UV and Optical Temperatures in Stacked $z \sim 4.5$ –8.5
P04	Che Lin Yuan CUHK	Comparing the Radial Structure of Simulated and Observed Dense Cores
P05	Cheung Kahan CUHK	Characterization of Silicon Dielectric Properties and Subwavelength Anti-Reflection Structures at 300–500 GHz for Submillimeter Astronomy
P06	Cheung Yu Tung CUHK	Stacked Lyman-Alpha Haloes and Low-Ionisation Outflows in MUSE LAEs at $3 \leq z \leq 5$
P07	Kwan Lin Kristy Fu CUHK	The Butterfly Effect? An Anti-Correlation of Sunspots and High-Energy Gamma Rays
P08	Lee Yiu Sing HKU	Empowering the Next Generation of Astronomers: Insights from the HKAGE S3GAP001E Trial
P09	Leif Lui Beijing Institute of Mathematical Sciences	Environmental Études: Quasinormal Modes of Rotating Black Holes in Astrophysical Environments
P10	Di Luo HKU	A candidate milliparsec-scale supermassive black hole binary revealed by optical periodic variability with a phase flip
P11	Luo Kin Ho CUHK	Radial velocity statistics of cosmic voids as a probe of interacting dark energy
P12	Weitao Lyu CUHK	ROGER: A Next Generation Submillimeter Polarimeter
P13	Niu Jiarui HKU	No Strong Evidence for Plasma Lensing in FRB 20240114A
P14	Tang Chun Shing CUHK	SNoS - Sky Noise Simulator on Radio Astronomy
P15	Tomoki Wada HKU / Tohoku University	Fast radio bursts as cosmological probes: Application to the Second CHIME/FRB Catalog
P16	Wan Chun Ki CUHK	A Guided Diffusion Approach to Strong-lensing Lens Modelling
P17	Wang Dong CUHK	Continuum Fluorescence and the Abundance Discrepancy Factor in the Lagoon Nebula (M8)
P18	Lingyu Xia CUHK	Solar Dark Matter below the Evaporation Limit: A Monte Carlo Study
P19	Tanlin Xu CUHK	Design and Development of a Lightweight, Low-Cost 1.6-m Radio Telescope for 21-cm Hydrogen Line Observations
P20	Chi Fung Yang HKU	Gravitational-wave caustic crossings around spinning supermassive black holes: wave-optical signatures and black-hole constraints
P21	Yang Feichi HKU	Through the Euclid Lens: Parametric Simulations of Galaxy-Galaxy Strong Lenses
P22	Yung King Chi CUHK	Structure of Diffuse Ionised Gas in Large Magellanic Cloud
P23	Guangquan Zeng CUHK	How mergers shape galaxy morphology in the IllustrisTNG simulation
P24	Jichen Zhang CUHK	Zoom-In View of Nearby LI(N)ERs by DBSP
P25	Yifan Sun HKU	EP-FXT View of the Pulsar Wind Nebula Powered by PSR B1706-44

Organizing Committees

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